



Lava Cap Mine Superfund Site

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY • REGION IX • NOVEMBER 2004

Nevada County, CA

U.S. EPA Signs Record of Decision for Mine Area Remedy



The U.S. Environmental Protection Agency (U.S. EPA) has signed the Record of Decision (ROD) selecting a cleanup plan for the Mine Area Operable Unit (OU) of the Lava Cap Mine Superfund site. The Lava Cap Mine Superfund Site (the Site) includes all areas affected by contamination from the Lava Cap Mine in the Little Clipper Creek watershed east of Grass Valley in Nevada County, California (see Figure 1, pg. 2). For a history of the site, see pg. 4. The Mine Area of the Site includes the pile of tailings left after processing the ore as well as the mine shaft and buildings, mine residences, and the creek just below the tailings pile. The tailings contain arsenic at hazardous levels, as well as other contaminants. During a winter storm in 1997, a log retaining dam failed, releasing over 10,000 cubic yards of arsenic-contaminated tailings into Little Clipper Creek and downstream into Lost Lake. The selected remedy for the Mine Area includes construction of a multi-layer cap, surface water diversion channels, and a rock buttress to keep water out of the mine tailings and keep the waste in place. It also includes cleanup of mine buildings and residences and of Little Clipper Creek from the mine property to Greenhorn Road (see Figure 2, pg. 3).

The Selected Remedy

While EPA stabilized the tailings pile on the Lava Cap Mine property in 1997 and 1998, the selected remedy for the Mine Area of the Site provides for long-term control of the tailings and surface water flows in this OU.

EPA's selected remedy for the contamination at the Mine Area includes:

- **Mine tailings and waste rock:** Consolidate and regrade the tailings and cap them on-site with impermeable membrane; cover the tailings and waste rock with soil and revegetate the cover; install a rock buttress to replace the failed log dam;
- **Surface water:** Divert clean surface water flow around the mine tailings; collect and treat contaminated water draining from the mine shaft and from the tailings;
- **Mine buildings:** Remove tanks, vats, sumps, and contaminated soil from mine buildings and dispose of this material with the mine tailings or off-site as hazardous waste where necessary;
- **On-site residences:** Demolish residence built on waste rock next to the tailings pile; remove contaminated soil around three other residences and replace it with clean soil; move excavated material to the mine tailings pile for long-term management;
- **Little Clipper Creek to Greenhorn Road:** Excavate tailings and contaminated sediment accumulations and haul excavated material to the mine tailings pile for long-term management;
- **Land-use restrictions:** Implement land-use covenants to prohibit disturbance of the remedy and to prohibit use of the property for a hospital, school, child-care center, or residence, including mobile home site where such uses are inconsistent with the selected remedy.

The selected remedy will cost an estimated \$8.54 million to construct plus \$163,000 annually to operate and maintain.

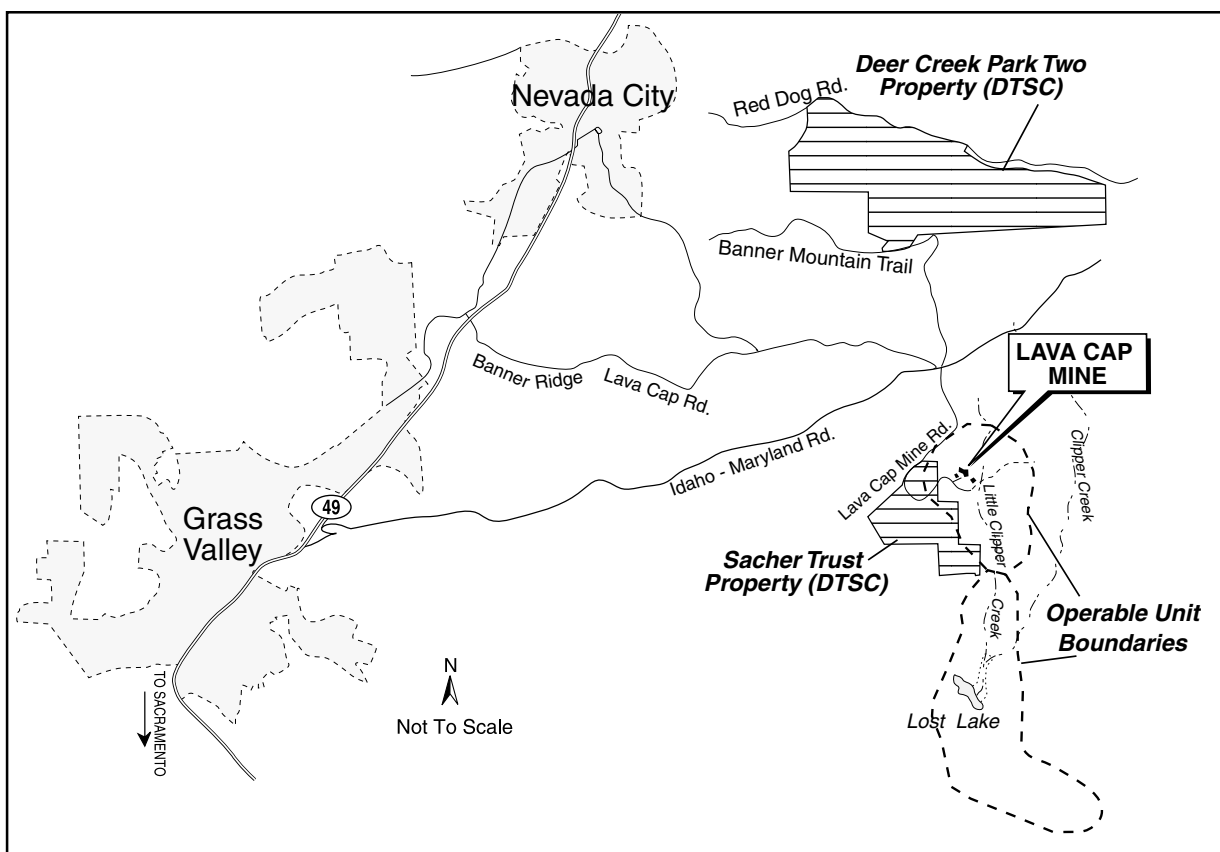


Figure 1: Site location

Next steps

Mine Area. Detailed design drawings of the components of the selected remedy are under development and due for completion in the spring of 2005. EPA plans to begin construction on the Mine Area remedy in the summer of 2005 and complete the project within a year.

Lost Lake. The Feasibility Study (FS) for the Lost Lake area is under review by State and federal agencies, and EPA plans to propose a cleanup plan and hold public hearings in early 2006.

Groundwater. EPA collected some groundwater data during the site-wide Remedial Investigation (RI) and continues to monitor area drinking water wells. In addition, EPA has now begun a focused groundwater investigation that will entail collecting and analyzing groundwater samples over several seasons, to provide data for a better understanding of groundwater movement and contaminant concentrations related to the Site.

Nearby State projects. The State of California's Department of Toxic Substances Control is working on separate cleanup projects in the area of Lava Cap Mine. It

is planning to clean up waste rock piles on the Sacher Trust property immediately west of the Lava Cap Mine property and on the Deer Creek Park Two property about a mile to the north (see Figure 1, above). For information on these projects, contact Maria Gillette, DTSC Site Mitigation Unit, (916) 255-3953, or Heidi Nelson, DTSC Public Participation Branch, (916) 255-3575.

Coordination and communication. EPA will continue efforts to inform and involve the public, State and County agencies, the business community, local non-profit organizations, and especially property owners near the Site regarding our activities and the results of our studies. We plan to conduct further public meetings and briefings for elected officials and local agencies. We will also issue newsletters like this one periodically. EPA plans to continue funding a local organization, the Lava Cap Mine Superfund Coalition, to hire an independent technical advisor to help the community understand the issues and represent their concerns regarding the Site. EPA also maintains a web site for Superfund site information at: www.epa.gov/region09/waste/sfund.

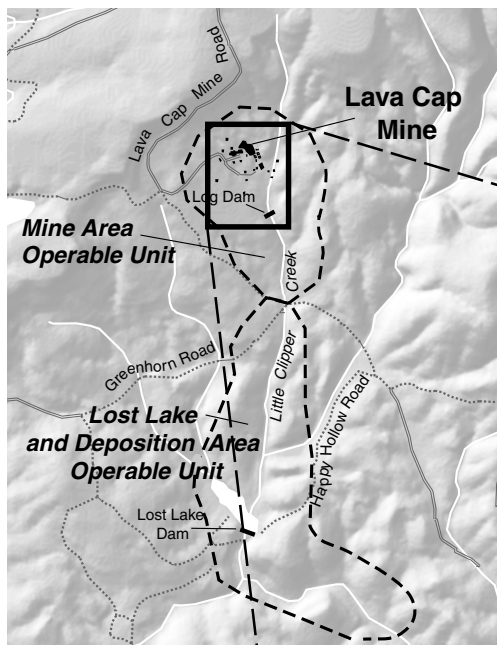


Figure 2: At left, aerial view of Lava Cap Mine OUs

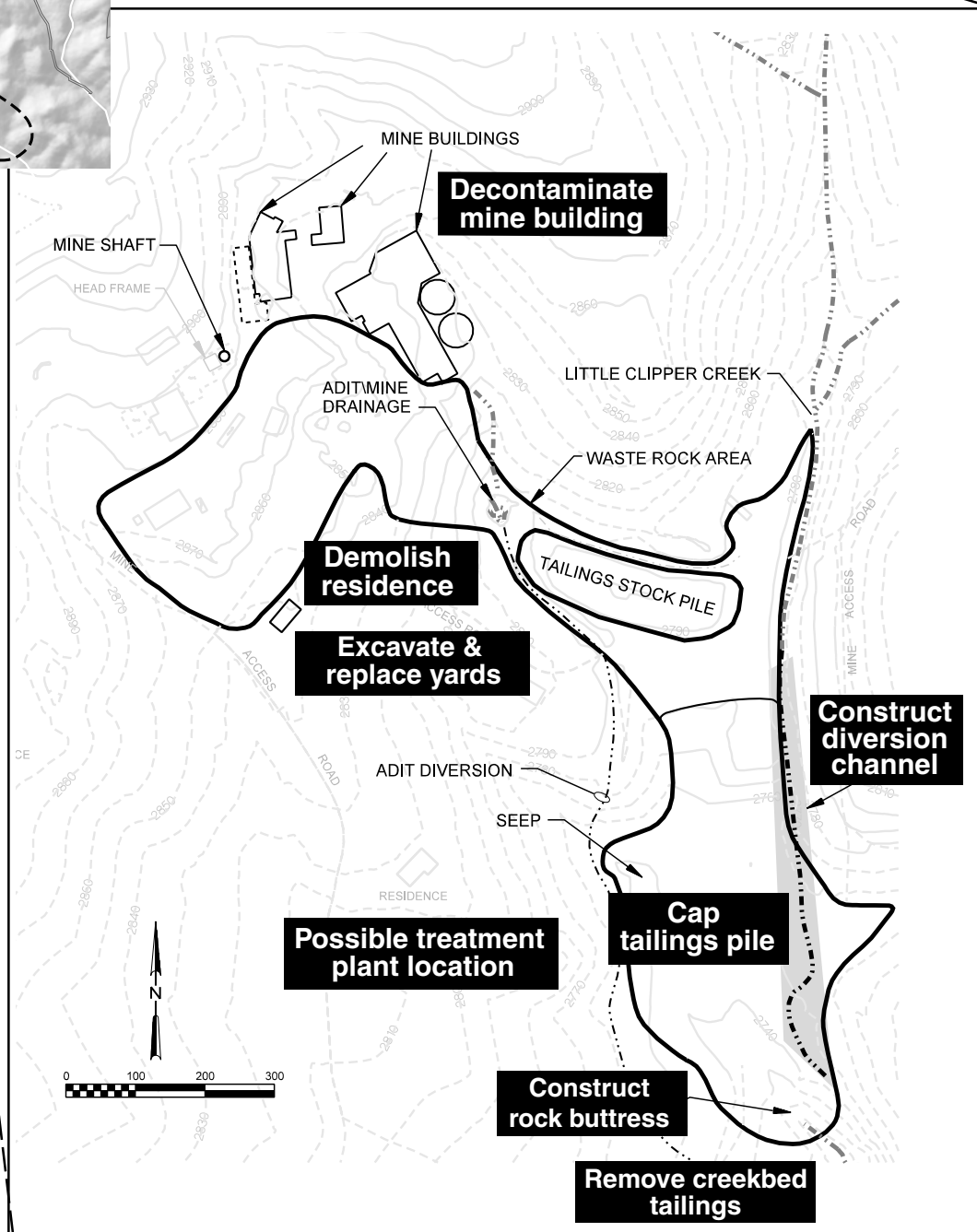


Figure 3: Detail of Mine Area OU showing remedy components

Site History

Location. The Lava Cap Mine Superfund Site is located in the historical gold-mining area in the northern foothills of the Sierra Nevada Mountains. The Lava Cap Mine property covers about 30 acres in a forested area east of Nevada City and Grass Valley, California. Today, large rural residential lots surround the mine property on the southern slope of Banner Ridge in the Little Clipper Creek drainage about a mile above Lost Lake.

Site features. Once an active gold mine, the mine property contains several structures of varying ages and conditions. Buildings that formerly housed the mill, cyanide treatment facility, assay office, and store rooms, are in disrepair, but four residences have been maintained and inhabited, one of them on the edge of a waste rock pile. The waste rock and tailings pile covers about eight acres of the mine property near the mine shaft. The waste rock is a gravel mixture of the various kinds of rock that underlie the Site. The tailings range in consistency from fine sand to silty clay and are various shades of gray depending on moisture content and oxidation. Surface soil adjacent to Little Clipper Creek contains some natural sediment but is mainly made up of mine deposits.

Historically, access to Lava Cap Mine during mining operations was through an adit, or entrance, connected by a horizontal tunnel to the central mine shaft. Although the adit has collapsed, the caved-in adit entrance discharges contaminated water continuously. Fractures and joints in the bedrock underlying the Lava Cap Mine Site contain groundwater. This aquifer is the source of domestic drinking water in the vicinity of the site.

Mine operations. Various entities operated Lava Cap Mine intermittently from 1861 to 1943. A flotation plant and, later, a cyanide process at the mine extracted metals from the ore. The ore contained naturally occurring arsenic, and the processing left the arsenic in the finely ground tailings. The tailings were deposited in the Little Clipper Creek drainage on the property.

Contamination studies. Between 1978 and 1994, various public agencies and private entities sampled surface water, mine discharge water, waste rock, and tailings. In 1978, the California Regional Water Quality Control Board, evaluating a discharge permit request, found high concentrations of arsenic in mine discharge water. In 1979, the decomposing log dam released tailings into Little Clipper Creek and the Board issued a Cleanup and Abatement Order. EPA took sediment and soil samples on the Lava Cap Mine property in May

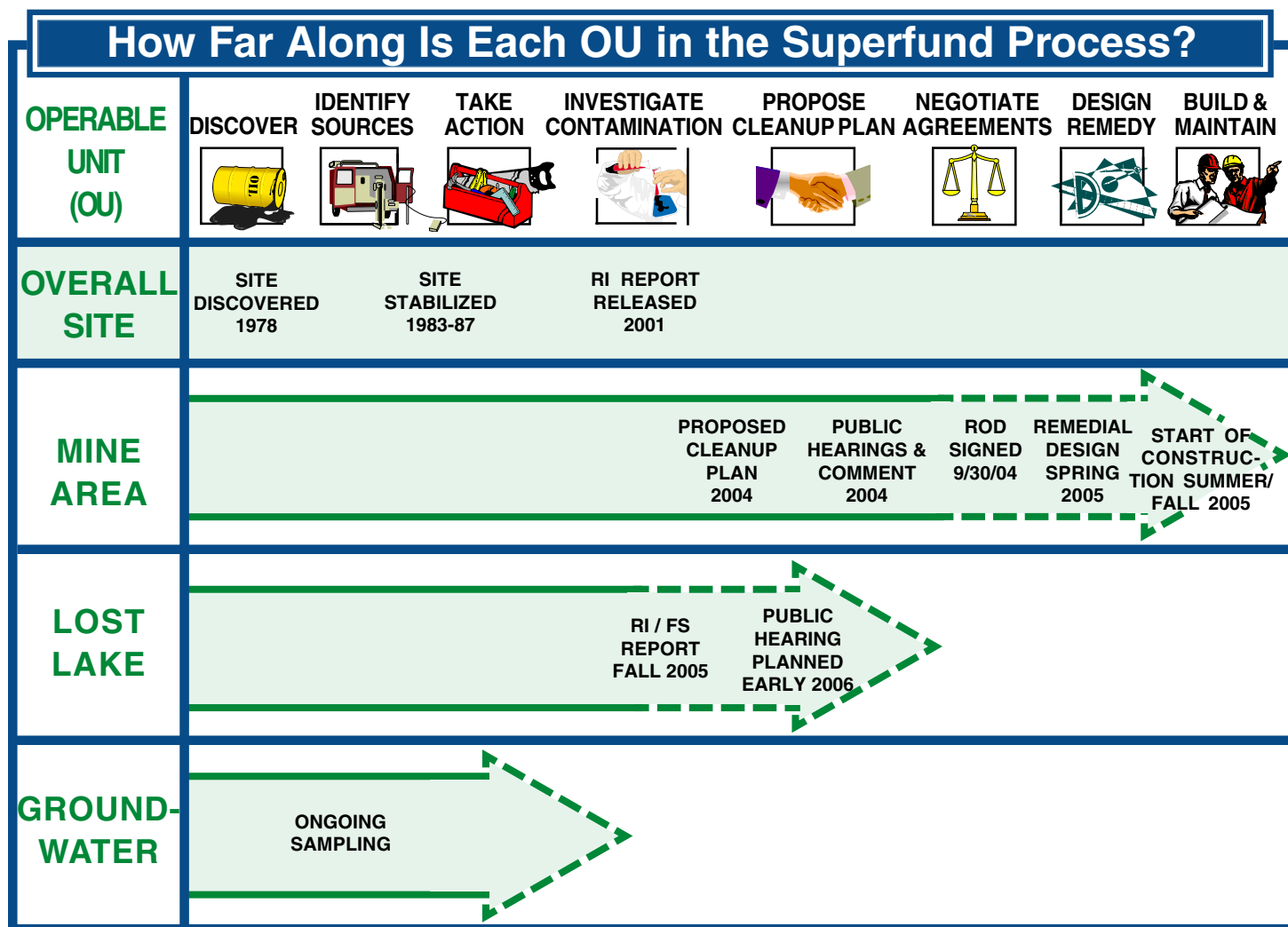
1994 as part of its preliminary investigation, finding elevated concentrations of arsenic and lead.

Site stabilization. During a major winter storm in January 1997, the upper half of the log dam collapsed, releasing over 10,000 cubic yards of tailings into Little Clipper Creek. In May 1997, the State of California's Department of Toxic Substances Control (DTSC) and Department of Fish and Game and Nevada County's Department of Environmental Health inspected the mine and downstream areas. They found extensive deposits of tailings in Little Clipper Creek and downstream into Clipper Creek and Lost Lake. In October 1997, the EPA Region IX Emergency Response Office determined the high arsenic concentrations and the mobility of the extremely fine-grain tailings warranted conducting a time-critical removal action under Superfund authority. During October and November 1997, EPA removed 4,000 cubic yards of tailings from just upstream of the damaged log dam, stockpiled it on a liner on the waste rock pile, and covered it with another liner, clay cap, and waste rock. The project also included grading the tailings pile to reduce its slope, reinforcing the partially failed dam with large diameter rock, and placing and diverting Little Clipper Creek around the tailings pile. In 1998, EPA stabilized another smaller tailings release and further improved drainage.

NPL listing. In 1998, EPA evaluated the Lava Cap Mine Site to determine if it warranted listing on the National Priorities List (NPL) as a Superfund site. EPA formally listed the Lava Cap Mine Site on the NPL in February 1999. NPL listing allows EPA to spend Superfund money to investigate and clean up the Site.

EPA investigations. EPA began the in-depth investigation of the nature and extent of contamination, called the Remedial Investigation or RI, in October 1999. As part of this effort, EPA studied the risks to both human and ecological health posed by the Site. These efforts identified arsenic as the primary chemical of concern for human health at the Site and arsenic and other metals as potentially harmful to plant and animal species. EPA released the RI report for public comment in November 2001. Then, after dividing the site into three project areas or OUs, EPA completed the Feasibility Study (FS) of cleanup alternatives for the Mine Area OU in October 2003, and proposed a cleanup plan in February 2004. EPA will propose cleanup plans at a later date for the Lost Lake OU and the Groundwater OU.

Figure 4: Superfund timeline graphic



Information Repositories

Pertinent documents related to the Lava Cap Mine Superfund site can be found at the locations listed below. Documents at these repositories are part of the Administrative Record for the site.

- Superfund Records Center**
(the most extensive collection of documents)
 95 Hawthorne Street, Suite 403S
 San Francisco, CA 94105
 Telephone: (415) 536-2000
- Nevada County Library**
 980 Helling Way
 Nevada City, CA 95959
 Telephone: (530) 265-7050
- Grass Valley Public Library**
 206 Mill Street
 Grass Valley, CA 95945
 Telephone: (530) 273-4117



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U.S. EPA Contacts

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U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-3)
San Francisco, CA 94105-1309

You may leave a toll-free message at
(800) 231-3075 and your call will be returned.

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Or visit EPA's Web page at:
<http://yosemite.epa.gov/r9/sfund/overview.nsf>

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75 Hawthorne Street (SFD-3)
San Francisco, CA 94105-3901
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